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RUTLAND

INFANTILE PARALYSIS EPIDEMIC

Rutland, Vermont

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Preface

Although men may battle with men, and nations with nations, man knows neither personal grudge nor national enmity in the fight against a common foe that threatens all mankind, such as disease. In the field of medicine and public health man has conquered and will continue to conquer only by cooperative effort and the benefit of cumulative experience. The knowledge of the cause of a disease and its treatment must not die with him who discovered it; and when a disease is still unconquered it is quite as important that all the ground gained should be held, and all possible information as to the enemy's strength and weakness should be known to those who are still fighting the battle.

Infantile paralysis [had been] fairly well described [as] early as 1774. The first known epidemic of any considerable size in the United States occurred in Vermont in the summer of 1894. [It] was reported by Dr. Charles S. Caverly, President of the State Board of Health.

Not only was Vermont to be associated with the history of infantile paralysis because of this first epidemic, but later epidemics made heavy inroads upon the comparatively small population of the state, leaving many crippled children to be cared for. This situation became so serious that after an epidemic of 306 cases in 1914, through the efforts of Dr. Caverly and the generosity of an anonymous friend of the state whose interest he enlisted, a special fund was provided for the study of the cause and treatment of infantile paralysis.

Thus it happened that from being the first state in which the disease occurred in epidemic form, Vermont also became the first to undertake on a state-wide scale the after-care of the victims of infantile paralysis. The special fund, as stated, also provided for research as to the cause and transmission of the disease, and in this field, too, much valuable knowledge resulted from efforts of those carrying on the work.

From *Infantile Paralysis in Vermont—1894-1922*,
State Department of Public Health, p. 9-10.

The First Polio Epidemic in the U.S.

1894

by Jean C. Ross

CHARLES SOLOMON CAVERLY, M.D., was born in Troy, New Hampshire, on 30 September 1856, the only son of Abiel Moore and Sarah P. (Goddard) Caverly. Charles Caverly's father was also a doctor. He attended Dartmouth College and practiced medicine in Troy and Pittsford, Vermont, where he moved in 1862.

Charles was educated in the high schools of Pittsford and Brandon. He prepared for college at Kimball Union Academy in Meriden, New Hampshire. In 1878 he graduated from Dartmouth College where he was a member of Phi Beta Kappa and valedictorian of his class. Upon graduation he entered the University of Vermont, from which he received the degree of M.D. in 1881. At UVM he was a class leader and recipient of three prizes. Subsequently, he studied for eighteen months at the College of Physicians and Surgeons in New York City, beginning practice in Rutland in January 1883. For a year he was in association with Dr. Middleton Goldsmith, an eminent physician who was, also, a close friend. Dr. Caverly then independently opened his own office in his home at 9 Court Street, next to the County Courthouse. He specialized in diseases of the nose, throat and chest.

Doctor Caverly married Mabel Alice Tuttle in Rutland on 5 November 1885. She was the daughter of Harley C. and Mary (Root) Tuttle of Rutland. She and her husband had one son, Harley, who died in 1910 at the age of 23 years. At the time of his death, Harley Caverly was enrolled in a post-graduate course in medicine at Johns Hopkins University in Baltimore.

Charles Caverly lived to be 62 years of age. He died in the 1918 scourge of influenza that swept the country at the close of World War I.

His Public Works¹

Although decidedly successful in private practice, it was in connection with public health movements that Dr. Caverly was best known. Some of the offices he filled were:

Health officer of Rutland, assistant surgeon 1st regiment, Vermont national guard, member Vermont state board of health in 1890 and its president and animating spirit [from] 1891, president Rutland County medical society in 1892, director and vice president Rutland hospital association, vice president and director Pittsford sanatorium, director American public health association and counsellor for New England district, fellow [of the] American medical association.

He was professor of hygiene and preventive medicine [at] the University of Vermont, and was to have commenced his annual course of lectures the week following his death. The United States government had intended to have every student attend this course.

He was a member of the Congregational church, Rutland lodge, No. 79, F. and A.M., of Davenport chapter, R.A.M., and Killington commandery, No. 6 Knights Templar.



Charles S. Caverly (1856-1918), Rutland physician, president of the State Board of Health, 1891-1918.

He was a charter member of the Rutland Country Club. He received the honorary degree of Doctor of Science from the University of Vermont [for] his distinguished services in the interest of literature and art, acquired and cultivated during a life of active reading and observation, both at home and abroad.

He took no active personal part in politics, but may fairly be credited with fathering all the advanced legislation on public health which passed [the] Vermont Legislatures, with the result that both in legislation and practice, the state [was] a recognized leader. In addition, he succeeded in building up a department of research in connection with the state laboratory of hygiene, which at times astounded the medical world with the originality and importance of its discoveries.

Early in the summer of 1894 physicians in parts of Rutland County observed that an acute nervous disease, almost invariably accompanied by some paralysis, was

endemic. The first cases occurred in the City of Rutland about the middle of June. By mid-July towns around the county began to report cases, although the disease prevailed chiefly in Rutland City.

Dr. Charles Caverly, sensing the general feeling of unease prevailing primarily among parents of young children, began to undertake a systematic investigation of the outbreak. In his official capacity as president of the State Board of Health, Dr. Caverly sought detailed information, in regard to their own cases, from all physicians practicing in the area. The survey convinced Dr. Caverly that the region had been affected by an epidemic of a nervous disease very rarely observed.

Of the cases about which he took notes, all but six of 123 cases occurred in the Otter Creek Valley. Dr. Caverly found several degrees of severity among the patients. In his preliminary report published in the *New York Medical Record*, among children there were more afflicted males than females; among 110 children 50 recovered fully; 10 died, leaving 50 permanently disabled. The report was acknowledged as the best contribution in America of the disease up to that time. At a subsequent 46th Annual Meeting of the American Medical Association at Baltimore, Maryland, in May of 1895, Dr. Caverly read the following report in the Section on Neurology and Medical Jurisprudence:

NOTES OF AN EPIDEMIC OF ACUTE ANTERIOR POLIOMYELITIS

By Charles S. Caverly, M.D.

The following "Notes" are the result of an investigation undertaken by me in an official capacity at the time of the outbreak, and since continued through private and professional intercourse.

The epidemic was one of an acute nervous disease whose chief distinguishing characteristic was motor paralysis, more or less complete, of one or more members or groups of muscles, and which prevailed in the State of Vermont, chiefly in a single valley, during the summer of 1894. The results of my investigations, as far as completed at the time, were published in the *Yale Medical Journal* for Nov., 1894, and in the *New York Medical Record* for Dec. 1, 1894. At the time of making these reports, it did not seem possible to speak of the epidemic more definitely than as one of "acute nervous disease of unusual type." A further careful study of the complex features of the epidemic, however, and of the subsequent history of many of the cases, together with the corroborative opinions of many able medical men, seems to clear up any doubt that at the time existed, as to the correct diagnosis of the essential disease that prevailed.

The epidemic, as I have indicated, invaded our valley in the early summer of 1894. It prevailed with increasing severity during July, apparently reached its climax about the first of August, and steadily declined until about the first of October, the last case occurring early in that month.

The early summer was popularly considered unusually hot and dry, though the official figures do not substantiate the former opinion. The temperature and humidity statistics show little variation from the average. The territory mainly covered by this outbreak is a portion of the Otter Creek Valley, about thirty miles long and from twelve to fifteen wide, including the sides of the bounding mountains. Otter Creek, the largest stream of water in the State, has its source in the mountains to the south

of the affected area, and sluggishly flows in a northerly direction through it, emptying some miles below into Lake Champlain. That part of its course through the affected district is the most populous and likewise the narrowest part of the valley. The city of Rutland is the commercial and geographical center of this area. The towns affected have a combined population of 26,000, of which fully two-thirds dwell in the quarrying and manufacturing centers of Rutland, West Rutland and Proctor.

The starting point of the epidemic, and most of the earlier cases, were at Rutland. In this city occurred 55 of the 132 cases of which I have notes; 27 of the remainder occurred in the town of Proctor, one-sixth the population of Rutland. This town suffered the worst of any in the valley. The remaining fifty cases were scattered over the rural districts in fourteen towns. The most of these cases occurred at considerable elevation above the creek, and many well up on the Green Mountains. Four of these towns with eight of the cases are not in the Otter Creek Valley. The natural drainage of the valley is the creek, and this stream, below Rutland, carries a large amount of sewage. If the disease had shown any preference for those houses immediately on the stream below Rutland, it might at once be inferred that the low water in a sewerage-contaminated stream had some bearing on the etiology of the disease. But such did not appear to have been the case, except possibly, in the town of Proctor, which is six miles below Rutland and is built on the abrupt bluffs above the stream. Drainage defect in general did not seem to influence the distribution of the disease. The water supply was excluded as an etiologic factor, it being largely from wells in the rural communities, and in the villages from mountain streams and springs. That the general sanitary surroundings and methods of living were in anywise responsible for the outbreak is also more than doubtful, since the disease showed no partiality to that class of the population whose habits and surroundings are the most unsanitary. The so-called laboring classes were oftenest affected, but not out of proportion to their numbers. These classes here, whether among the farming population or in the mills and quarries, have usually pure air, food and water. Hence, general sanitary conditions did not seem to have any influence on the epidemic.

The geologic formation of the valley is not peculiar. The prevailing formation is limestone, and in the range that skirts the western border of the valley is found the chief marble deposit of Vermont. The valley as a whole is an old lake basin and is pronounced by Prof. G. W. Perry, the State Geologist, as a very ordinary valley.

The outbreak of which I speak consisted of upward of 130 cases of disease in which the commonest clinical manifestation was some degree of motor paralysis of widely varying extent. It will not surprise any one that so large a number of cases presenting a bewildering variety of initiatory constitutional symptoms, as well as local paralyses, should have proved a very knotty problem for the diagnostician. It was long a question whether this was an epidemic of one, two, or more diseases, and along the established lines of symptomatology and pathology there was no solution of the problem. I have been able to collect histories more or less complete of 132 cases directly affected in this epidemic, and this number probably represents at least 90 per cent of the whole number.

Case 1. Boy, 3 years, American. Hygienic surroundings good; previous health good; active child; stronger than his brother two years older. No apparent cause. Fell sick June 20. Moderate fever, coated tongue, loss of appetite, sluggish bowels. His condition was confidently ascribed to indigestion, and after two or three days

the continuance of the symptoms, though in decreasing severity, proved troublesome of explanation. On the third day his parents insisted that he could not use his legs. It was soon evident that this was the case. His reflexes were normal, sphincters unaffected, no anesthesia or noticeable hyperesthesia. The weakness was most marked in the large extensors of the thigh. After the entire subsidence of his febrile symptoms, his muscular weakness began to improve, at first very slowly. In three weeks he had gone on to full recovery.

This case is an excellent illustration of the mildest type of the disease, a type that included about forty cases.

Case 2. Boy, 3½ years, Irish. Hygienic surroundings fair; sturdy child; most active of a family of three children. Only apparent cause playing too hard on a hot day. Taken with high fever, temperature 102° to 104° F., nausea, general restlessness and headache. Had incontinence of urine, no albuminuria. On third day acute symptoms subsided except incontinence of urine. It was then noticed that he had lost the use of his legs. Patellar reflexes diminished and considerable hyperesthesia of the legs. There was also diminution of faradic irritability. The left leg improved rapidly, the right slowly. After six weeks was able to stand and take a few steps by taking hold of chairs. After three months the paralysis and wasting were confined to the right glutei and lower spinal muscles. His efforts to walk have brought on a slight spinal curvature. The incontinence of urine continued in this child until Feb. 1, 1895, when it was relieved by circumcision. The paralysis, however, persists in the glutei and lower spinal muscles and promises to be permanent.

This case illustrates a very common phase of this epidemic, and in most of these cases there is probably some permanent impairment of certain muscles.

Case 88. Practice of Dr. Gale, Rutland. Girl, 6 years, American. Previous health had been frail. Had had a spinal curvature since she began to walk. Taken suddenly with high fever, nausea, head- and backache. On the fourth day of the attack she was paralyzed in all the extremities and one side of the face. Febrile symptoms subsided at this time. There was extreme hyperesthesia of the whole body and obstinate constipation from seeming lack of power in the abdominal muscles. Facial paralysis speedily passed off. Hyperesthesia and pains in the joints required the use of morphine for several weeks. After nine months she is still paralyzed in all the extremities, being able to flex the fingers and toes slightly and raise the head. The hyperesthesia has passed off.

Case 4. Practice of Dr. Fox, Rutland. Boy, 6 years, previous health fair. On two or three occasions had convulsions, presumably due to gastro-intestinal disturbance. Was seized with convulsions while playing on the street; they continued for nine hours. Moderate fever, rapid pulse, vomiting and rigidity of muscles of the neck and back. No paralysis noted during conscious intervals. Retention of urine during the last three days of illness. Death on the sixth day.

These four cases represent various types of the severe form of the disease; among these cases there were eighteen deaths.

The paralysis, which was the leading and most common characteristic, occurred in 119 instances. Of the remaining 13, 7 died before paralysis had time to develop, or it could not be determined whether there was really paralysis or not, and the remaining

6 that had no paralysis, all had a group of symptoms very common in the initial stage in those which were paralyzed, such as headache, fever, convulsions or nausea, one or all. In those cases in which the exact day of the paralysis is noted, it is stated to have occurred four times on the first day, eight times on the second, ten times on the third, five times on the fourth, three times on the fifth, once on the sixth, four times on the seventh and one on the tenth day of illness. It is quite likely that the actual duration of premonitory symptoms prior to the appearance of the paralysis was often overestimated, since loss of power in the extremities, especially in children, might easily go unnoticed for some time, unless the physician or friends were looking for it. In several instances the loss of power in the legs was the first symptom noticed. The initial paralysis was located as follows:

Both legs	69	cases
Arm and leg, same side.....	10	"
One arm	5	"
One leg	7	"
Both legs and one arm	4	"
Tongue and throat	2	"
Both arms	3	"
All the extremities	4	"
Extensors of one thigh	2	"
"Variously in the arms and legs".....	8	"
External rectus of one eye	1	"
One side of the face	1	"
One arm and the opposite leg	1	"
All the extremities and abdominal muscles	2	"
Stated to have had no paralysis.....	6	"
Not determined	7	"

Of the six cases that are said to have had "no paralysis" all had distinct nervous symptoms explainable only on the supposition that they belonged to this epidemic. All the seven cases in which it was not certain whether they were paralyzed, died early, often with convulsions, and their occurrence at this time seems to warrant their being included in this series.

Of those cases that are known to have fully recovered according to the latest information I can obtain—

Both legs were paralyzed in	43	cases
Arm and leg, on same side, in	4	"
One arm in	1	"
One arm and both legs in.....	1	"
External rectus of one eye in	1	"
One leg in	1	"
There was no paralysis in	5	"

That there have been more complete recoveries than this, viz., 56, is quite certain, but I have not been able to trace them.

Fatal Cases: [T]en deaths were among males and 5 among females, and the sex is not stated in three cases. Seven of those that died are known to have been under 6 years, three between 6 and 14 years, while one died at 19 years, two at 21 years, one at 22 years, and one at 38 years. The percentage of deaths among adults is seen to have been very high.

A further analysis of the deaths shows that five of the cases were paralyzed in the legs, three in all the extremities, and one was hemiplegic. I might state that in the great majority of fatal cases the diagnosis was meningitis. Such a diagnosis was usually not at all inconsistent with the clinical features of the disease. Deducting from the whole number of cases, those which are known to have terminated fatally, and in recovery (74 in all), there remain 58 cases to be accounted for.

Permanent Paralysis.—Of the 58 cases which my report left unaccounted for, I have been able to get reports of 30 which are still maimed, from six to nine months after the initial attack. Of these 16 are stated to be males, and 12 females. Eighteen are under 6 years, 7 are between 6 and 14 years, and 5 are over 14 years of age. Here again we see the high percentage among the older patients. Of these 30 cases—

All the extremities are paralyzed in	1	case
Both arms in	1	"
Extensors of one thigh in	6	"
Glutei and lower spinal muscles in	1	"
Both legs in	6	"
Extensors of one thigh and one leg in	2	"
One leg in	6	"
Glutei alone of one side in	1	"
One foot and ankle in	1	"
Extensors of one hand in	1	"
Both legs, thigh and hips in	1	"
One arm in	2	"
Complete hemiplegia in	1	"

The muscular atrophy in most of these cases is marked though combatted by the usual treatment of rubbing, massage and electricity.

During this epidemic and in the same geographical area, an acute nervous disease, paralytic in its nature, affected domestic animals. Horses, dogs and fowls died with these symptoms.

The only reliable facts which I am able to give of the pathologic conditions in these cases among the lower animals are from the examinations of the cord of a horse that died paralyzed in the hind legs, and from that of the cord and brain of a fowl which was paralyzed in its legs and wings. Dr. W. W. Townsend, of Rutland, who made the examination of the horse, says that the examination of a section of the lumbar portion of the cord showed a "granular degeneration and pigmentation of the ganglion cells of the anterior cornua, and atrophy of the anterior nerve roots." He further states that there was no meningitis in this case. Dr. Charles L. Dana, who made the examination of the fowl, with the aid of Dr. Dunham of the Carnegie Laboratory, found "an acute poliomyelitis of the lumbar portion of the cord and no meningitis." A bacteriologic examination of the same cord by Dr. Dunham gave negative results, and it was found that the inoculating needle did not strike the diseased parts.

While epidemics of poliomyelitis are not unknown or unrecorded, recent authorities speak only vaguely of their occurrence. It has not thus far found a definite place in the descriptions of this disease. The fact that poliomyelitis may occur epidemically, suggests, of course, an infectious origin, a view of the nature of the disease which has only been recently discussed.

That a disease occasionally prevails epidemically suggests a specific poison, a definite toxin, and this phase of the etiology of poliomyelitis has recently received attention from foreign observers as well as others in this country. Thus far, however, there does not seem to have been any substantial progress made toward isolating any specific microorganism peculiar to this disease.

Our epidemic suggests, though on purely clinical grounds, the possibility of such a cause. The unfortunate absence of an autopsy in our cases, though strenuous efforts were several times made to secure them, prevents us from throwing any light on this part of the subject. That domestic animals suffered with human beings in our epidemic is a noteworthy fact and one, so far as I can learn, hitherto unobserved. That such was the case cannot be doubted. It has long been known that animals were often attacked by meningitis during an outbreak of that disease in epidemic form. Poliomyelitis has been produced artificially in rabbits and guinea-pigs, but so far I have been unable to find an instance of its spontaneous occurrence simultaneously with the disease in man. This fact again emphasizes the possible infectious character of the disease and lends additional interest to the epidemic here recorded.²

Doctor Caverly maintained a close professional involvement with the after-care of polio victims. From the time of the initial 1894 epidemic in Rutland and over the next two decades into the 20th century, on a state-wide scale, Vermont had the most fully-developed plan in this country for the after-care of poliomyelitis. Vermont has 9,565 square miles, much of it mountainous, with many of the less-traveled roads difficult at that time to negotiate, even in good weather. Following a severe epidemic of polio in the northern part of Vermont in 1914, a friend of Dr. Caverly made an anonymous and generous gift of a large sum placed at the disposal of the State Department



PROCTOR FREE LIBRARY

The Proctor Hospital, Proctor, Vermont, 1919

of Public Health. Part of the money was used to provide care for as many stricken children as possible. The best solution seemed to be to establish regional clinics where physicians and parents could be advised as to the care and treatment to be given each patient.

Five regional centers were set-up. Doctor Robert W. Lovett, Boston physician; Ernest G. Martin, Ph.D., Professor of Physiology, Stanford University, and nursing assistants were invited to conduct the clinics. Follow-up home visits were made by the nursing assistants. Treatment depended largely upon massage, muscle training and less highly regarded use of galvanic electricity. Overall, in 1915 alone, 334 clinical examinations were made.

Moreover, such was the public anxiety about poliomyelitis that in July of 1917 Governor John A. Graham attended a meeting of the State Board of Health and issued the following action (quoted in part):

In the past years we have had reason to think that large general gatherings of people from any towns have distributed this infection.

In view of these facts . . . [w]hen one or more cases develop in any town the local board of health should take action either prohibiting all public gatherings or excluding all children under 16 years of age from gatherings, also from lunch, soda water, ice cream counters and other public eating and drinking places. It is hereby ordered that no fairs, Chautauquas, street carnivals or circuses be held in the State of Vermont until further notice.

By order of the State Board of Health,
CHARLES F. DALTON,
Secretary

There were no serious objections to the governor's proclamation except by a Chautauqua Company which had several contracts that summer in Vermont. It secured a restraining order through the U.S. District Court: *Community Chautauqua, Inc., vs. Charles S. Caverly, Et Al.*

The case went to court with Herbert G. Barter, Attorney General of Vermont, arguing for the defendants. The decision was in favor of the political and professional opinion: impairing a contract under the circumstances is not unconstitutional. The restraining order was dissolved and the preliminary injunction denied.³

In the meantime, the State Department of Health was besieged with cases requiring surgery. Urgent cases had been sent to Children's Hospital in Boston or to the Hospital for the Ruptured and Crippled in New York City. By 1919 some definite plan had to be adopted to alleviate deformities. Out-of-state hospitals had waiting lists; parents were often opposed to the procedures. It was also important to have the patient available until the casts were removed and apparatus was fitted. The dilemma was resolved in the winter of that year by renting two wards of six beds from the Proctor Hospital. Doctor F. R. Ober and his staff from Children's Hospital in Boston arrived to take charge. Doctor Ober operated for two days and stayed one more day to observe. After that, he returned for four weekends to perform additional surgery and to change plaster casts. By March the last patient was discharged. The great improvement in the children and their happy experience in the hospital did much to alleviate the dread of operations on the part of parents and children. Each case was followed closely at home.

With his death on 16 October 1918, Dr. Charles Caverly unfortunately did not live to see the outcome of the pioneer project at Proctor Hospital and its subsequent extension to other locations within the state. A sixth location in Barre was also added to the group of clinic centers. Sixty-eight new patients in 1920 applied to the clinics for treatment.

Sometimes it was impossible to obtain the best results for children returning from hospital care if their home conditions were sub-marginal. In many cases a combination of circumstances made it impossible for the children to attend school. On 1 January 1921 the dreams of after-care workers were realized. Through the generosity of Miss Emily Proctor, daughter of Governor Redfield Proctor, Sr., a school for crippled children was opened in her hometown of Proctor. It was located in the Ormsbee House at 25 High Street. A contemporary account tells the story:

Ormsbee House is a school and home for crippled children. It was opened the first of January, 1921, admitting both boys and girls between the ages of six and twelve, and has a capacity for fifteen. It was expected to take only those children who had been crippled as a result of infantile paralysis, and so far but one other case has been taken.

No payment towards the ordinary care and maintenance of the children is required, though parents may contribute anything toward the work that they like and are expected to provide clothing and to take care of expenses other than those incurred in connection with the boarding and schooling of the children; as, for example, dentistry and special medical treatment or care because of other illness.

Children are given carefully regulated and prescribed exercises daily and their school work is arranged according to their strength and capacity, with the idea of putting them forward in the ordinary grade work as rapidly as possible. No children below full normal mentality are admitted but, of course, most of them, because of their infirmity, have been kept out of school so much that they are behind the normal grade for their age.

Children are selected because of their inability, owing to their infirmity, to attend school at home or any public school; because of the financial needs of their parents and their particular need of care and special exercises to assist in the improvement of their disability and upbuilding of their general health.

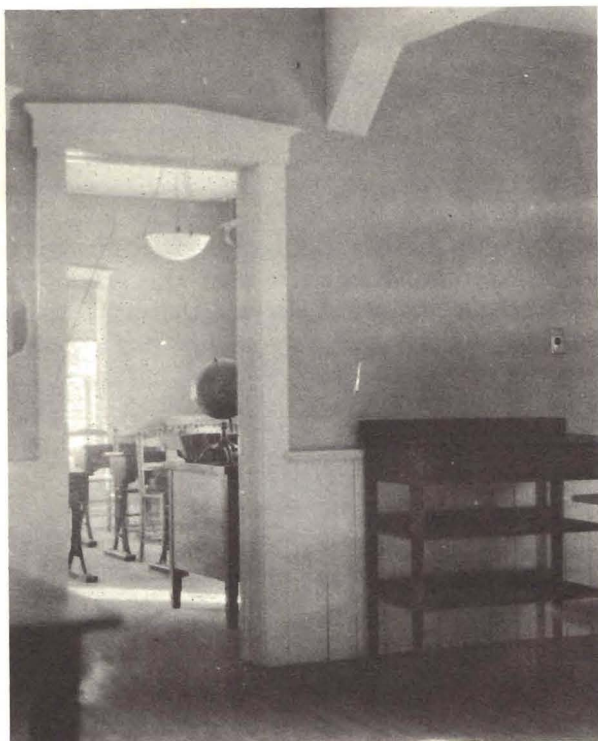
The institution is open all the year around, the children continuing in school throughout the year except for a two or three-weeks vacation in the summer. The children are selected and sent to the school largely by the infantile paralysis after-care workers in the state.⁴

Ormsbee House remained in operation until 1929. The house itself is no longer standing. In 1937 the ongoing need was again met, this time by the organization of the Vermont Association for the Crippled, located in Rutland City.⁵

Not all of the earlier generous, anonymous gift made available to the State Department of Health in 1914 was earmarked for direct service to polio victims. The Research Laboratory of the State Board was dedicated to its investigation of the infectious agent for polio. The work was organized in 1914 by Dr. Harold L. Amoss of the



Ormsbee House, 25 High Street, Proctor, Vermont



A classroom at Ormsbee House



COURTESY ELAINE PURDY

Ormsbee House children at play

Rockefeller Institute for Medical Research and carried on by a number of successors. During his lifetime Dr. Caverly remained in close touch with the activities of the department and was a source of inspiration to those who worked under his supervision. The approach and format of the research lab did not essentially change with the years . . . “a tribute to the wisdom and foresight of its founder, Dr. Caverly.”⁶

Over time and with many dead-end failures, the infectious polio virus was isolated. It can exist in the central nervous system and upon the mucous membrane of the nose, throat and intestines. It can also be present in the mucous of healthy persons who may not become ill themselves, but may infect other persons with the virus. They in turn, may develop the disease. By 1938 the search for a vaccine was worldwide. A great stride was taken when Austrian scientists found that monkeys could be infected. This gave scientists an experimental animal to work with. A major turning-point was reached in 1949 when the laboratory at Harvard University developed the growth of the virus in quantities great enough for use in a vaccine. Four years later Dr. Jonas E. Salk of the University of Pittsburgh was able to make a vaccine using all three forms of viruses which cause polio (spinal, bulbar, spinal-bulbar).

Nearly a hundred years after the first epidemic which occurred in Rutland, Dr. Jan Carney, Vermont Commissioner of Health, is able to report that there was not a single case of polio in 1991 anywhere in the New England states.⁷

FOOTNOTES

- ¹*The Vermonter*, published monthly by Charles S. Forbes, St. Albans; Vol. 23, p. 254-255.
- ²The State Department of Public Health; *Infantile Paralysis in Vermont . . . 1894-1922*; Printed by The Vermont Printing Co., Brattleboro, VT 1924; p. 21-38.
- ³*Ibid.*, p. 176-178; Charles S. Caverly, Sc.D., M.D.
- ⁴Gale, David C., *Proctor: The Story of a Marble Town*; The Vermont Printing Co., Brattleboro, VT, 1922; p. 232.
- ⁵Bellerose, George, *The Vermont Achievement Center*; Academy Books, Rutland, VT, 1977; p. 42-53.
- ⁶The State Department of Public Health; *Infantile Paralysis in Vermont . . . 1894-1922*; p. 309, W. L. Aycock, M.D.
- ⁷Centers for Disease Control, U.S. Department of Health and Human Services, Atlanta, Ga., October, 1992. Six vaccine-associated cases (outside N.E.) were reported for 1991 in the U.S. and territories.

AUTHOR

Before retirement in 1981, JEAN ROSS held an administrative position at the Vermont Achievement Center. Since 1979 she has been managing editor of the *Rutland Historical Society Quarterly* and chairs the Publication Committee.

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No piece of constructive work of any magnitude was ever accomplished by one man alone, but it is usually true that long before the first step is taken the idea has assumed definite form in the mind of one person, who is the leader and inspiration of the other workers. He has seen the need and has caught the vision of the goal to be achieved. Dr. Caverly did not live to see the disease against which he had fought so long and so untiringly really conquered and the fear of future epidemics removed: but he did live to see many of the victims of infantile paralysis in Vermont well on the road to happy, useful, and in some cases normal lives, and to know that real contributions to the knowledge of the disease had been made by those working in cooperation with the State Board of Health under his presidency.

From *Infantile Paralysis in Vermont, 1894-1922*,
State Department of Public Health, p. 10-11

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Annual Meeting is held at 7:30 p.m. on the third Thursday of October.

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Manuscripts are invited: address correspondence to the Managing Editor.

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